DRAFT VERSION FOR REVIEW

LPRSA – 17 Mile RI/FS

February 6, 2014 Technical Meeting Minutes

K&L Offices, Newark, New Jersey

Attendees

EPA:
USEPA Region 2: Stephanie Vaughn, Jennifer LaPoma, Chuck Nace, Eugenia Naranjo, Marian Olsen
USEPA HQ: Marc Greenberg

On behalf of EPA:
CDM Smith: Sharon Budney, Kristen Carpenter, Scott Kirchner, George Molnar, Frank Tsang
HDR: Edward Garland, James Wands

CPG:
de maximis inc. for CPG: Rob Law, Bill Potter
AECOM, sub to demaximis inc.: Betsy Ruffle
Windward Environmental, sub to demaximis inc.: Mike Johns, Lisa Saban, John Toll
Anchor QEA, sub to demaximis inc.: John Connolly, Jim Quadrini
Integral Consulting, sub to demaximis inc.: Marcia Greenblatt, Bill Locke
BASF: Douglas Reid-Green
CF-PSEG: Agnes Antonian
ELM representing BASF: Hank Martin
GeoTrans for Alcatel-Lucent: Tal Ijaz
Givaudan Fragrances Corp.: Richard Wroblewski
Sherwin-Williams: Jeff Flanzenbaum
Weston Solutions for Sherwin-Williams: Rob Gascoyne
EHS-Support for Ashland: Andy Patz
Integral Consulting, for GE: Russ Kennan

Partner Agencies:
NJDEP: Diane Groth, Nancy Hamill, Anne Hayton, Jay Nickerson
NOAA: Reyhan Mehran
USACE: Lisa Baron, Elizabeth Franklin
USFWS: Tim Kubiak

Welcome/Meeting Objectives (Stephanie Vaughn, EPA and Rob Law, de maximis)

EPA: Welcome and introductions. Purpose and format for the technical meeting were discussed. Key points made include:

- Primary purpose of the meetings is to have regular communication between EPA, the Partner Agencies and the CPG during the development of the RI, FS, and risk assessments for the 17-mile RI/FS of the LPRSA, with the goal of possibly resolving, or at least understanding, the key areas

of disagreement between the parties. Participation will not be interpreted as agreement with the issues raised.

- This process will not negate the need for a full and thorough review of the draft reports once they are submitted

- EPA will prepare draft minutes and send them around for comment by the Wednesday following each meeting. Comments will then be due by the following Monday, and final minutes with an agenda for the next meeting will be sent out at least one week in advance of the meeting.

- Presentation materials for the following months meeting will ideally be sent out with the agenda (i.e., goal is at least one week in advance of the meeting).

CPG: Opening comments and overview of agenda for the day.

Interim Conceptual Site Model

Interim CSM Overview (Jim Quadrini, Anchor QEA)
See "Preliminary Interim Conceptual Site Model to EPA" presentation slides 1-11.

An overview was provided to assist in review and included the following descriptions:

- The CSM is a living document; it will be refined as new information comes in

- Contaminants examined included: 2,3,7,8-TCDD, PCBs, HMW and LMW PAHs, DDx, dieldrin, chlordane, mercury, copper and lead. This list was not generated using the risk assessments, but includes COPCs that are risk drivers.

- All sediment data presented in the CSM document was carbon normalized to reflect the hydrophobic nature of contaminants and difference in the sediment total organic carbon (TOC)

- Only post -2000 data were included as the data quality objectives and analytical methods from these sampling events were similar. 2 mile "bin" segments were used to present data. Several ways to "bin" segments of the data were reviewed, but 2 mile "bin" segments were selected for the CSM.

- Box Plots of surface sediments show:
    - 2,3,7,8-TCDD – pattern of declining concentration upstream and downstream, indicates a source internal to the LPR, the contamination is transported upstream due to tidal action
    - PCBs – more broad diffuse source of PCBs, influenced by Newark Bay
    - HMW PAHs – highest concentration upstream of Dundee Dam, declining through the LPR, other sources outside of LPR have influence
    - Mercury – higher concentration in Newark Bay, declining going upstream, indicating influence by mercury contamination in Newark Bay

- External Sources – External source data were presented to get a sense of the influence from above Dundee Dam and also from Upper Newark Bay on the average concentrations in the LPR. Additionally, one or more tributaries may contribute to elevated contaminant levels at least locally for many contaminants. However, there is insufficient information to understand the relative importance of other potential ongoing sources (i.e., CSOs, direct discharges, etc.).

- **Discussion:** NOAA requested a clarification on whether the external sources slide indicates that other contaminants exist above and below the study area. The CPG responded that contaminant concentrations inside the LPR are mostly influenced by sources outside the LPR; except for 2,3,7,8-TCDD for which the source is within the LPR. The CPG went on to state that external sources influence the contaminant concentrations and distribution within the LPR; this becomes important when thinking about reducing concentrations inside the LPR. Source control is necessary for remedial measures and affects the ability to control concentrations.

Fate and Transport/Natural Recovery (John Connelly, Anchor QEA)
See "Preliminary Interim Conceptual Site Model to EPA" presentation slides 12-29.

Major Fate and Transport Mechanisms discussion included:

- Estuarine Processes – overview of LPR hydrodynamics (i.e., tides, salinity gradients), net estuarine circulation, and variation of the salt front location.

- Scour and Deposition – overview of three regimes. Regime 1 tends to accumulate solids under low flow conditions. Regime 2 is a transport regime, where solids move throughout system without depositing. Regime 3 is scour and downstream transport.
    - Net scour and deposition estimated from changing bathymetric maps, river flows are broken into three regimes (slide 14). The amount of time in each regime was used to help evaluate sediment movement. Some depositional areas became net erosional after 1995, while large areas had no change in recent past (2007-2012).

- Sedimentation - Influence of sedimentation on contaminant levels. Concentration vs. sedimentation rate plots shown. Plots indicated tendency for higher surface concentrations locations with low sedimentation rates (i.e., point bars and mudflats).

- Sediment stability – Event-driven scour, deposition/burial, mixing, and estuarine/tidal processes affect LPR sediments and COPCs distribution.

Contaminants

- 2,3,7,8-TCDD was used to infer short-term and long-term transport dynamics of LPR contaminants.
    - Long-term transport observation indicates sediment bed trends reflect time-integration of transport processes.
    - Short-term transport observation indicates water column trends show bed-water column interactions

Natural Recovery

- Sediment Recovery – deposition, net sedimentation, resuspension and diffusion

- Patterns for 2,3,7,8-TCDD have been widespread, correlates with the rate of net sedimentation, and has varied spatially.

- Contemporary – Erosional areas show increase in concentrations. Depositional at <1 cm/year shows little change. Depositional >1 cm/yr shown 30-35% recovery.
- Future- May be slow in future. Depends on concentration difference between deposited particles and surface sediments and sedimentation rates.

LPRSA RI/FS Schedule/Deliverables (Rob Law, de maximis)
See "LPRSA RI-FS Schedule & Deliverables to EPA" presentation

Key near-term schedule/deliverables through April identified:

- Revised RARC including Appendix B approval
- FSWP Work Plan Approval
- Preliminary CSM Review & Comments
- Modeling Oversight Meetings (now through April) – CPG is developing a bioaccumulation model
- Monthly RI/FS Meetings

Progress and action on these items will affect number and types of deliverables and schedules for remainder of 2014.

First Deliverable – Draft BERA and HHRA due April 11

Draft RI/FS due December 31.

Remedial Investigation (RI) Report (Jim Quadrini – Anchor QEA)

Overview of the RI Report Table of Contents
See "Preliminary RI Report Outline to EPA" presentation

Appendices will consist of various reports - may provide a few examples of figures/data interpretation in the RI report, while the full set will be in the appendix.

➢ Discussions included:

- NJDEP requested the first few sections of the RI to assist in the review of the CSM. Additionally, a sediment characterization report plotting and displaying all data from 2000 to date was requested. CPG noted that it will be easier to share figures rather than text.

- EPA – we will be sharing data evaluations as these meetings progress. Final versions of all data summary reports will be shared, finalizing now (drafts have already been shared).

- CPG stated that the Chemical Water Column Water Monitoring and Physical Water Column Monitoring reports will be completed in 2 weeks.

- EPA stated that the data summary reports do not include data analysis; did not want to base the evaluation on preliminary analysis or draw false conclusion based on limited data sets.

- List of potential upcoming meeting topics were discussed. *List is provided at the end of this document.*

ACTION: EPA and Partner Agencies to provide a list of what figures and data EPA/Partner Agencies would like to be shown, CPG to send out figures or share at next meeting.

Baseline Ecological Risk Assessment Overview (Lisa Saban, Windward)

See "BERA Overview to EPA" presentation

An overview of the BERA and the table of contents were presented.

- Based on approaches, methods, and assumptions presented in the USEPA approved Problem Formulation Document (2009), Revised RARC and the Data Use and Evaluation Plan.
- Consistent with USEPA guidance (1997, 1998, 2002, 2005)
- Reviewed the lines of evidence for the benthic assessment including the sediment quality triad (SQT), tissue and surface water for the different assessment endpoints
- Reviewed the lines of evidence for the fish assessment endpoint that included tissue, dietary, surface water, egg tissue, egg count, and health assessment
- Reviewed the lines of evidence for the bird assessment and mammal assessment
    - Bird prey species, effects birds could have eating prey, can model egg tissue, no chemical egg data
    - Mammal – dietary and habitat, looking at different areas of exposure
- NJDEP requested that toxicity profiles discussed in the BERA be for all chemicals of potential concern from the FFS (approximately 12 chemicals), not just limited to 2,3,7,8-TCDD and PCBs.

Suggested topics for next CPG-EPA/PA Meetings:

- Major receptor group discussions:
    - Wildlife ecological risk assessment (slated for March meeting)
    - Fish ecological risk assessment (slated for April meeting)
    - Benthic ecological risk assessment (slated for May meeting – details of this approach will be available for review (Draft BERA) prior to this meeting/discussion).
- NJDEP requested to receive the information prior to the meeting so there is time to review. This request has been reiterated by the Partner Agencies.

Overview of Baseline Human Health Risk Assessment (Betsy Ruffle, AECOM)
See "_HHRA_Overview to EPA" presentation.

Presentation on the general human health CSM for the LPRSA.

- The approach and assumptions follow what was laid out in the RARC plan
- Per agreement with EPA, use CPG-collected RI/FS data for sediment, surface water, fish tissue, and crab tissue (2008-2012)

- Calculating exposure point concentrations using ProUCL – evaluating mixed fish diets with and without carp. The CPG reported that carp was not one of the 4 target species identified in the 2009 Tissue QAPP (American eel, channel catfish, largemouth bass, and white perch). Because during the CPG's creel angler study it was found that a number of people also caught and ate carp, an additional set of EPCs that includes the four QAPP target species consumed by anglers and carp have also been calculated. CPG stated they are evaluating both sets of EPCs in the baseline HHRA because it provides useful information on the impact of carp in the diet. *Note: The LPRSA Human Health and Ecological Risk Assessment Streamlined 2009 Problem Formulation document, dated July 31, 2009 includes carp as a fish species that may be evaluated in the fish consumption exposure pathway.*

- There is concern from EPA and NJDEP with how both sets of fish diet EPCs will be used

    - In response to CPG's concept of deriving two RME scenarios, one with carp tissue and one without, the NJDEP stated that the RME for this risk assessment must incorporate carp tissue, further stating that the Department has been notified by local municipal officials regarding the presence of Polish-speaking anglers targeting carp for capture and consumption downstream of Dundee Island Preserve. Therefore, from NJDEP perspective, the decision-making RME used for HH risk assessment must appropriately incorporate carp tissue data.

ACTION: Will need additional discussion to determine how both sets of fish diet EPCs will be presented and where the best place to present that information will be.

- Based on quantitative screening level evaluation, outdoor air inhalation pathway poses negligible risks and will not be carried forward

- Risk Characterization
    - Preliminary results indicate that consumption of fish and crab are the risk-driving exposure pathways
    - Both cancer and noncancer risks for angler receptor (all three age groups) are above target risk levels – fish diet that includes carp drives fish consumption risk
    - Direct contact with sediment and surface water are not risk-driving exposure pathways

- Preliminary Findings
    - Preliminary data evaluations suggest that 2,3,7,8-TCDD is the major human health risk driver
    - Other bioaccumulative compounds, including PCBs, pesticides, and mercury, also contribute to human health risks
    - Urban background conditions contribute to cumulative risk burden
        - Levels of PCBs, organochlorine pesticides, and mercury elevated in fish tissue above Dundee Dam

- Risk Management question from CPG – how can large carp be managed? They cause damage to the ecosystem. By removing large carp, there are ecosystem benefits and risk to human receptors is reduced. Further discussion to be included during the ERA topic at upcoming

meetings.

- CPG preparing the Creel Angler Survey report – this is supplemental information that may be used in the uncertainty section. It is not guiding the risk assessment. CPG is currently reviewing a draft. The report includes how the survey was conducted, results, analysis of what the anglers are catching, keeping and eating. Eventually they intend to publish papers.

ACTION: **NJDEP will provide EPA with additional information that NJDEP has regarding potential carp consumption by local subpopulations. Betsy Ruffle also asked to receive this information.**

- USFWS wanted to know how to integrate the carp data that are unevenly distributed through the river. CPG Response – evaluating the EPC for fish consistency with the sampling design presented in the Fish and Decapod Crustacean Tissue Collection for Chemical Analysis and Fish Community Survey QAPP (Tissue QAPP). A site-wide EPC was calculated, independent of where the fish were caught.

- Models – different assumptions such as river mile boxes versus fish species range were used in the bioaccumulation model to do the sensitivity analysis, looked at RM 2-4, 0-8, 8.5 to Dundee Dam.

LPRSA Feasibility Study Overview (Bill Locke, Integral Consulting)

See "LPR FS Overview to EPA" presentation.

An overview of the FS and table of contents for the report was presented.

- FS Work Plan – Revised FSWP submitted January 31, 2014 and requested expedited review

- Pending January 24, 2014 CPG letter requesting AOC modification for FS interim deliverables was referenced.

Suggested upcoming meeting topics:

- RAOs and PRG development
- Alternatives development
- Technology identification and screening

Preliminary List of Meeting Topics to be Discussed Among All Parties

1. Reference for sediment toxicity evaluation– on-going discussions between EPA Region 2, EPA HQs and NOAA on how to resolve this issue. Hope to arrive at a workable solution by the end of March.

2. Human Health Risk Assessment
    - How EPC for HHRA to be defined, biggest unknown in HHRA
    - EPC and RME calculations – with or without carp – where and how information will be presented

3. Bioavailable depth – which sediment data is being used for future risk predictions 15 cm or 2 cm; CPG is using 0-2 cm
    - Mike Johns, Windward clarified for evaluation of current risk baseline ecological risk and human health risk CPG is using 0-15 cm;
    - The CPG is evaluating both 2 cm and 15 cm as a bioavailable depth for future risk predictions; the CPG believes that there are strong lines of empirical evidence collected by EPA/PAs and CPG during the RI that support 2 cm,
    - EPA (Marc Greenberg) – this impacts future predictions to HHRA
    - NJDEP wants 15 cm used
    - Mike Johns – Reiterated that CPG is using 15 cm for BERA for benthic community
    - EPA (Mark Greenberg) – how to look at risk reductions in future

4. Included Remedial Action Level (RAL) Concept in FSWP. The RAL will be used to select areas for active remediation.

5. Modeling will be used to evaluate achievement of PRGs for each alternative. Need to get comfortable with what depth of sediment we should be looking at, need to see sediment interpretation concurrently.

Action Items

1. EPA and Partner Agencies to provide a list of what figures and data EPA/Partner Agencies would like to be shown.

    Response: EPA clarified this request in an email dated 2/14/14 to demaximis inc. CPG will provide, to the extent practical, the request figures prior to the next meeting.

2. Will need additional discussion to determine how both sets of fish diet EPCs (Target species and Target Species plus Carp) will be presented and where the best place to present that information will be.

3. NJDEP will provide EPA and CPG with additional information that NJDEP has regarding potential carp consumption by local subpopulations.

4. EPA (Marian Olsen) – Inquired whether there are PPRTV Appendix toxicity values that should be checked with the Superfund Technical Support Center. CPG replied that that there is a package ready to go, which includes toxicity value tables and proposed Tier 3 values.

    Response: After the meeting, EPA (Marian Olsen) received a copy of the RAGS Part D Tables summarizing toxicity values. EPA will review and send appropriate information to the Superfund Technical Support group for review and comment.

<u>Topic Recommendations for Upcoming Meetings (not necessarily all for the next meeting)</u>
(please add topics even if not discussed during the meeting)

- Sediment Characterization
- Surface Water Characterization
- NJDEP requested to know what exposure COPCs will be used in the BERA – is there a firm list of COPCs that are being carried forward?
- NJDEP – wants more details regarding the TPH results, concerned with free product – Betsy Ruffle believes it fell out of the risk analysis
- Share EPCs used in the BERA and HHRA, and the non-directive parameters used
- Bioavailable depth issue
- Remedial Action Level concept
- Background/Reference
- Interpolation technique(s) to use – EPA anticipates a presentation on topic at future technical meeting.

Next meeting will be Thursday, March 6, 2014. Future technical monthly meetings will be on the first Thursday of every month.